METAL FABRICATION, MACHINERY & EQUIPMENT

Hazards & Solutions

ansell.com

METAL FABRICATION, MACHINERY & EQUIPMENT

Manufacturing of metal and machinery, commonly referred to as Metal Fabrication and Machinery & Equipment (M&E), is one of the most dynamic manufacturing industries due to its strong ties and interconnections with major economic sectors such as raw materials, fabricated metal, finished goods and services. The industry covers the entire spectrum of sub-sectors ranging from general purpose and power machinery to specialised process and metal fabrication machinery.

Manufacturing and production are among top 3 occupations with the largest number of disabling injuries according to the US National Safety Council's (NSC) statistics. A 2019 study by NSC estimated the total cost of workplace injuries at a staggering $171 billion in the US only.[1] Injuries to hands and fingers account for approximately 25 percent of work injuries. Many of these injuries occur due to failure to observe safety protocols or caused by absence of adequate personal protective equipment (PPE) at production facilities. These injuries are, therefore, preventable.

Operating machinery and welding equipment, working from heights, carrying heavy loads, working on or near exposed energised parts and many other work activities can be hazardous and require safety consciousness and compliance with regulations and safety protocols including the use of PPE.

PRIMARY HAZARDS IN METAL FABRICATION INDUSTRY

Impact Risk

Cut Risk

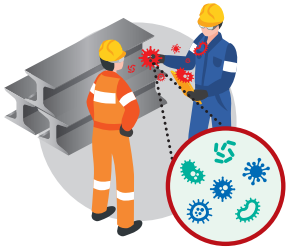
Electrical Risk

Abrasion & Scrapes

Extreme Temperatures

Musculoskeletal Disorders

Chemicals Burns



Viral Infections

1. *https://injuryfacts.nsc.org/work/costs/work-injury-costs/#:~:text=The%20total%20cost%20of%20work,administrative%20expenses%20of%20%2459.7%20billion.*

METAL FABRICATION, MACHINERY & EQUIPMENT HAZARDS & SOLUTIONS

Mechanical hazards like moving machine parts may potentially cause severe workplace injuries such as crushed fingers or hands, amputations and burns. Other common injuries in metal fabrication or M&E include cuts and severing injuries, stabbing or puncture caused by equipment or metal sheets as well as friction or abrasion due to rough surface parts and musculoskeletal diseases due to vibration. Machine parts, materials and emissions can be hot or cold enough to inflict burns or scalds and working with energised components may cause electrical shock and burns. Metal fabrication including welding, cutting, and brazing is exceptionally dangerous as these work processes create sparks, fumes, radiation, and other hazards. Following safety protocols and using adequate PPE is essential for protecting workers from these preventable injuries.

Ansell offers an expansive portfolio of hand and body protection solutions to guard against hazards such as cut, puncture, abrasion, vibration, electrical, and impact risks. Our product range also includes gloves and suits designed to protect skin from chemical hazards, such as paints, solvents, hexavalent chromium, and cleaning fluids that may be present in metal fabrication. Metal fabrication and M&E workers who are exposed to the industry-related hazards deserve appropriate protective solutions that help them stay safe and productive while delivering comfort and performance.

As the industry includes different types of machines and processes, a risk assessment should be conducted for each manufacturing line or work environment. It may be necessary to involve individuals with specialised or technical expertise to conduct such an assessment. AnsellGUARDIAN® helps companies around the world to assess potential risks and take steps to avoid them by making appropriate PPE selection based on various parameters including the types of hazards, job requirements, duration of use, etc.

CUT PROTECTION

One of the major hazards to M&E and metal fabrication safety is a high risk of cuts and lacerations while handling metal sheets, sharp-edged objects, and operating equipment with sharp-pointed parts. The workers are often exposed to glass, dangerous machinery, and other sharp objects and edges where cut, severing injuries or puncture are likely to occur. According to Bureau of Labor Statistics, roughly 30 percent of all workplace injuries in the US only are from cuts and lacerations, with 12 percent of those occurring on the hand. To ensure shop safety and to prevent manual handling accidents in the workplace, it is important to select the right PPE with an appropriate cut level protection adequate to the performed tasks.

HyFlex® 11-754

The unique combination of ultra-lightweight comfort and high cut performance in an ultra-thin glove featuring touchscreen capability for enhanced productivity, when you need the precision handling and assembly of sharp, dry, ultra-fine parts.

HyFlex® 11-543

Versatile cut-resistant gloves for demanding applications. Featuring FORTIX™ Abrasion Resistance Technology, offering excellent abrasion resistance than the previous generation, with a dirt-masking design further extending glove life.

HyFlex® 11-561

Increased durability that delivers up to 20% more abrasion resistance. It provides excellent grip and enhanced comfort. Made to be ultra-lightweight and breathable.

HyFlex® 11-280

Excellent cut protection with a soft and cool feel, making it the best choice for all-day comfort. Seamless design with INTERCEPT™ Technology. Engineered to perform in combination with any HyFlex® cut-resistant glove.

Note: Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment.

IMPACT PROTECTION

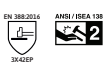
Workers manufacturing or operating heavy machinery with moving parts or pneumatic equipment put their hands and arms to the risks of crush and pinch. Many tasks in M&E industry and metal fabrication include the use of large tools like presses, shears and saws, handling metal sheets and heavy materials, further exposing hands to hazards which can lead to devastating injuries if not properly protected. Ansell's RINGERS® Impact Protection System guards workers against impact risks while providing superior comfort and dexterity.

RINGERS® R840

Light duty knit glove with a nitrile coated palm and TPR impact protection. The RINGERS® R840 combines the comfort and performance of the HyFlex® 11-840 glove and the benefits of RINGERS® Level 1 impact TPR protection to provide the most comfortable light duty solution for warehouse & logistic industry.

RINGERS® R665

Premium leather impact glove and excellent cut protection for ultimate comfort, durability, and performance. Single piece palm and point finger-tip construction enhances flexibility and dexterity when handling tools and objects.



RINGERS® R068

Fully coated gloves designed for impact, cut and liquid protection. Comes in high-visibility colours for reinforced protection. Offers better grip on wet and dry surfaces.

RINGERS® R065

Breathable knit shell offers cut resistance, while the half-dipped nitrile coating on palm with a sandy finish offers enhanced grip. TPR impact protection on top of hand and full length of fingers.

Note: Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment.

HEAT AND COLD PROTECTION

Workers in metal fabrication are exposed to both contact heat or cold and convective heat, requiring appropriate PPE for handling hot or cold objects, working in extreme temperatures, and to protect hands while welding, casting and melting, molding and forging. Moreover, machine parts, materials and emissions such as steam and water can be hot or cold enough to inflict burns or scalds. To mitigate these risks, Ansell provides a range of PPE designed to resist extreme temperatures while delivering comfort and performance.

ActivArmr® 43-216

These industrial heat-resistant gloves offer high levels of durability, control and protection from heat, flame, sparks and puncture.

EN 388:2016 3243B · EN 407 413X4X

ActivArmr® 97-631

For outdoor works in the wintertime or in low temperature environments such as cold storage, the PVC coating on this cold-resistant glove is made to be an invaluable resource.

EN 388:2016 2231B · EN 511 12X

ActivArmr® 42-474

These heat-resistant gloves' two-piece construction features no outseams, enhancing finger comfort and flexibility, while a sweat-absorbent nonwoven felt liner limits perspiration.

EN 388:2016 2241B · EN 407 X2XXXX

AlphaTec® 58-201

Designed to keep hands safe in temperatures ranging from -40˚C (-40˚F) to 250˚C (482˚F) while providing chemical protection.

EN 388:2016 3232B · EN ISO 374-1:2016 Type A JKLOPT · EN ISO 374-5:2016 · EN 407 X2XXXX · EN 511 021

HyFlex® 70-225

HyFlex® 70-225 safety gloves' launderable, reversible design means they can be repeatedly washed and worn on either hand, for reduced replacement costs and extra convenience.

EN 388:2016 1442D · EN 407 2122XX

HyFlex® 11-543

Versatile cut-resistant gloves for demanding applications. It comes with assured heat resistance (withstand heat up to 100°C/212°F for at least 15 seconds).

EN 388:2016 4X32F · EN 407 X1XXXX · EN 1149 1/3

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ABRASION PROTECTION

When manufacturing or operating M&E with rough surface and moving parts, workers expose their hands and arms to the risk of abrasion and scrapes. Ansell offers a wide range of abrasion-resistant gloves that are extremely durable for extended wear in various abrasive applications that involve repetitive movements and handling metal sheets and panels. Ansell uses a resilient coating that dramatically extends working life of protective gloves and sleeves while improving their comfort.

HyFlex® 11-800

Industrial gloves with 30% greater breathability, providing all-day comfort and protection. Dermatest® certification, skin-friendliness guaranteed.

EN 388:2016 3131A

HyFlex® 11-818

Lightweight 18-gauge liner and thin coating for a "second skin" feel. FORTIX™ Abrasion Resistance nitrile coating provides ANSI/EN-compliant abrasion resistance. Nitrile foam coating ensures excellent grip, especially in dry conditions.

EN 388:2016 4121A · EN 16350

HyFlex® 11-819 ESD

Durable touchscreen-compatible gloves that protects product against electrostatic discharge. Comes with 2x more grip, offering up to 20% more durability. ZONZ™ Comfort Fit knitwork reduces strain in stress-prone areas.

EN 388:2016 4121A · EN 16350

HyFlex® 11-644

HyFlex® 11-644 cut-resistant gloves' INTERCEPT™ Cut Resistance Technology helps them achieve EN ISO B/ANSI A2 laceration defenses.

EN 388:2016 4342B

HyFlex® 11-840

Durable industrial gloves, offering 2x more grip and up to 20% greater abrasion protection. ZONZ™ Comfort Fit for safety gloves that offer breathable comfort.

EN 388:2016 4131A · EN 407 X1XXXX

HyFlex® 11-842

Sustainable Multi-Purpose glove liners are designed with 90% recycled nylon yarn reducing our carbon footprint by 75g CO_2eq/pair and plastic-free inner packaging that contains 70% fewer materials.

EN 388:2016 4131A · EN 407 X1XXXX

RINGERS® R840

Improved FORTIX™ Technology offers 20% more abrasion resistance for durability. ERGOFORM™ Ergonomic gloves reduce hand stress, providing a natural fit for improved performance. Ansell ZONZ™ Comfort Fit Technology enhances knitting, support, breathability, and range of motion for superior comfort.

EN 388:2016 4131AP · EN 407 X1XXXX · ANSI / ISEA 138 1

MICROFLEX® 93-260

Three-layer design for superior protection against harsh chemicals. Nitrile and neoprene offer broad resistance to acids, bases and solvents. Disposable glove with 12" length.

EN 388:2016 2000X · EN ISO 374-1:2016 Type A JKLOPST · EN ISO 374-5:2016 VIRUS · EN 421 · ISO 18889

Note: Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment.

ELECTRICAL PROTECTION

Working on or near energised parts is associated with risks of an electric shock or serious burns. Electric shock is one of the major risks encountered by welders and other workers using electric-powered tools and equipment where even low voltage or low current can cause serious harm or death. Occupational Safety and Health Administration (OSHA) considers electrical hazards as the second biggest safety concern in metal fabrication. Using the right PPE can help prevent potential accidents. Ansell offers best-in-class ActivArmr® electrical protection gloves that deliver ultimate comfort, performance and safety in challenging environments.

ActivArmr® Natural Rubber Electrical Insulating Gloves are designed to deliver ultimate comfort, performance, and safety. Better by design, these gloves allow for flexibility and dexterity with an ergonomic shape to reduce hand fatigue.

Low Voltage	**ActivArmr® Class 00**	**ActivArmr® Class 0**		
High Voltage	**ActivArmr® Class 1**	**ActivArmr® Class 2**	**ActivArmr® Class 3**	**ActivArmr® Class 4**

ActivArmr® 96-001 Canvas Bag

Essential storage solution for your electrical insulating gloves that protects the gloves from folding and keeps them out of excessive heat, sunlight, humidity, ozone, and chemicals or substances that could damage the rubber.

EN 388:2016
2111B

ActivArmr® 96-002

Made from premium goatskin leather, enhancing hand safety when conducting electrical work with (or close to) energised components, while offering moderate abrasion, puncture and cut resistance. Designed to be worn over Class 0 & 00 electrical safety gloves, these leather protectors can significantly extend wear life.

EN 388:2016
2111B

ActivArmr® 96-003

Premium goatskin leather guards against moderate cut, puncture and abrasion risks, while ensuring additional personal protection for workers engaged in electrical work, either with or near energised components. Their leather composition also enhances their dexterity, for unencumbered electrical PPE that remains easy to use.

EN 388:2016
2010X

ActivArmr® CLASS 00 - R0011BUL

Featuring new form fitting, these ultra-thin Electrical Rubber Insulated gloves help reduce fatigue for enhanced productivity while offering high dexterity and advanced tactile sensitivity for handling small parts. 30% thinner design delivers a second skin like fit and feel.

EN 388:2016
3121A

ActivArmr® CLASS 0 - RIG011Y

Made from natural rubber latex, using an eco-conscious dipping process, ActivArmr® Electrical Protection Class 0 - RIG011Y electrical gloves are both flexible and durable. These electrical safety gloves' smooth finish make donning and doffing easy.

EN 388:2016
2111A

ActivArmr® CLASS 00 - RIG0011Y

Comfortable, fitted electrical safety gloves, for assured durability and versatile protection. These electrical safety gloves' hand-at-rest design and non-splayed fingers reduce hand fatigue. Sufficient room for clothing and ventilation is ensured by a flared cuff design.

EN 388:2016
X232C

ActivArmr® CLASS 2 - RIG214B

Durable, flexible high-voltage electrical safety gloves, for assured hand protection. They are latex-made, using an eco-conscious dipping process, for durable, flexible electrical PPE. They are arc flash certified (APC 2 in combination with ActivArmr® 96-003 leather gloves) and resist a touch voltage AC maximum of 17000 V (DC maximum 25500).

EN 388:2016
X243D

ActivArmr® CLASS 3 - RIG316B

Durable, high-voltage electrical protection gloves, for maximum safety and great comfort. Consist of natural rubber latex, made through an eco-conscious dipping process, for flexible, durable safety. These electrical insulated gloves' non-splayed fingers and hand-at-rest design limits hand fatigue.

EN 388:2016
X243D

ActivArmr® CLASS 4 - RIG418B

Made from natural rubber latex, using an eco-conscious dipping process, these gloves make for flexible, durable electrical PPE. A flared cuff ensures ventilation and plentiful room for clothing. These electrical protection gloves' smooth finish also facilitates donning and doffing.

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REPETITIVE/ ERGONOMIC MOVEMENT PROTECTION

Vibration is a potential hazard for workers operating hand-held tools and powered equipment like impact drills, air powered wrenches, grinders and saws of all types. Prolonged exposure to vibration can cause changes in tendons, muscles, sensory nerves, bones and joints that may eventually lead to the hand and arm muscle damage known as hand–arm vibration syndrome. In addition to muscle fatigue due to vibration, musculoskeletal injuries are often caused by repetitive movements, overexertion of the muscle, and improper positioning while working. Along with the general precautions like mechanical isolation of vibrating source, limiting the duration of exposure, and equipment maintenance to avoid excessive vibration it is important to consider appropriate PPE to reduce the risks of damage to muscles, bones and joints ensuring workers' safety and comfort.

HyFlex® 11-842

Sustainable Multi-Purpose glove liners are designed with 90% recycled nylon yarn reducing our carbon footprint by 75g CO_2eq/pair and plastic-free inner packaging that contains 70% fewer materials. FORTIX™ Technology provides up to 20% greater abrasion resistance. ZONZ™ Comfort Fit Technology helps improve breathability and dexterity.

HyFlex® 11-816

Ultra-thin ergonomic design provides extreme tactility. Thin liner and coating provides maximum comfort and a barehand feel for workers who rely on fingertip sensitivity. Clean and skin-friendly.

HyFlex® 11-840

FORTIX™ Abrasion Resistance Technology delivers 2x more grip and ensures ANSI/EN-compliant abrasion resistance. ERGOFORM™ Ergonomic Design Technology ensures a fit shaped to natural hand contours.

HyFlex® 11-819 ESD

Durable touchscreen gloves with ESD protection, superior tactile sensitivity, and FORTIX™ Abrasion Resistance Technology for ANSI/EN-compliant abrasion resistance and enhanced grip.

HyFlex® 11-561

Improved FORTIX™ Technology delivers up to 20% more abrasion resistance for longer lasting handling in abrasive conditions. HyFlex® 11-561's palm-dipped coating improves grip, while a reinforced thumb crotch defends against rapid wear.

HyFlex® 11-571

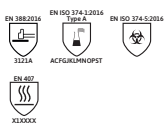
Improved FORTIX™ Technology delivers up to 20% more abrasion resistance for longer lasting handling in abrasive conditions. Developed with INTERCEPT™ Cut Resistance Technology providing 2x more cut protection.

HyFlex® 11-754

Developed with INTERCEPT™ Cut Resistance Technology, and satisfying ANSI A4 and EN ISO D cut resistance standards, HyFlex® 11-754 industrial gloves guard against lacerations and prevent common workplace injuries.

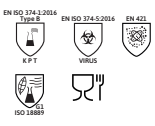
AlphaTec® 53-001

Multi-layer nitrile/neoprene polymer design offers protection from various chemicals, including acids, bases, and organic solvents. MICROCHEM™ Technology provides superior protection in hazardous environments.



MICROFLEX® 93-732I

ERGOFORM™ Design Technology reduces muscle strain during repetitive tasks, improving worker comfort and productivity. Distinctive black colour provides contrast while also hiding the appearance of oils, dirt and grime. Textured on the fingertips for a reliable consistent grip, ensuring tactility and secure handling of instruments and materials.



MICROFLEX® XCEED® 93-733

Designed with proprietary ERGOFORM™ design technology to support musculoskeletal health and increase worker productivity. With a low 0.65 AQL, these gloves offer advanced barrier integrity. MICROFLEX® XCEED® 93-733 gloves are designed to prevent rips and tears.

Note: Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment.

CHEMICAL PROTECTION

Machinery and metal fabrication hazards are not only limited to mechanical risks. Workers are exposed to a variety of harsh chemicals including paints, solvents, hexavalent chromium, and cleaning fluids. Without proper PPE, workers may experience chemical burns or any other type of skin irritation. Repetitive and prolonged exposure to these chemicals can prove toxic to the worker and severely affect their skin or respiratory system. Thick, nonporous PPE is needed to prevent liquids from leaking inside and touching the skin, with the durability to withstand scrubbing and sharp corners.

AlphaTec® 87-118

Ensure high levels of durability and abrasion resistance, as well as heightened water-based chemical resistance. These protective gloves also feature a beaded cuff, which facilitates donning and doffing, while preventing droplets travelling beyond the glove's surface, for greater wrist protection.

AlphaTec® 53-001

Multi-layer polymer design of nitrile/ neoprene/nitrile layers provides chemical protection against a wide range of chemicals from acids and bases to hydrocarbons and organic solvents.

AlphaTec® 04-003

Seamless PVC gloves with a comfort-boosting fleece effect, guarding against various chemicals and oils. Unique, flexible nitrile and PVC formulation, protect wearers from oils, grease and numerous chemical hazards.

AlphaTec® 58-535B

Industrial gloves with ANSELL GRIP™ coating reduce the effort needed to handle oily or wet parts. Black acrylic inner liner enhances comfort and facilitates outdoor applications. Bonded construction with a polymer coating minimises the risk of liquid and chemical leakage.

AlphaTec® 58-005

Optimised fit that integrates the nylon liner into the nitrile and neoprene shell for better dexterity and tactility versus double gloving. Excellent dry and wet grip enhance dexterity and reduce hand fatigue. Cuff can be folded to act as a gutter to prevent chemicals running down the arm.

AlphaTec® Solvex® 37-185

High-performance nitrile compound offers exceptional chemical resistance and strength in wet or dry conditions, providing a heavy-duty chemical-resistant covering up to the elbow. G2 level certified to ISO 18889:2019 standard.

MICROFLEX® 93-260

Three layers ensure superior protection against harsh chemicals. Designed to be thinner than standard reusable chemical-resistant gloves (7.8 mil) for protection that allows for better tactility when handling small objects and tools. Soft material and ergonomic design offer outstanding fit, feel and flexibility.

TouchNTuff® 92-600

The world's leading disposable glove for chemical splash protection. Strong and stretchy nitrile provides added durability. Made with TNT™ Chemical Splash Resistance Technology, these gloves effectively safeguard hands from exposure to harmful chemicals.

TouchNTuff® 92-605

Extended-cuff version of TouchNTuff® 92-600, the world's leading chemical splash protection gloves. Made with TNT™ Chemical Splash Resistance Technology, they provide extra strength for heavy-duty tasks, guarding hands, wrists, and forearms against harmful chemical splashes.

AlphaTec® 2000 STANDARD - Model 111

Made from superior breathable microporous laminate technology to provide superior protection from low hazard liquid spray and fine particulates. Tunneled elasticated 3-piece hood, wrists and ankles help minimise the risk of linting and cross contamination.

AlphaTec® 2300 PLUS - Model 132

An entry level Type 3 chemical protective coverall for workers involved in environmental clean-up and general chemical handling applications. Provides an excellent barrier against infective agents and offers viral protection. Tested for protection against fentanyl.

AlphaTec® 4000 - Model 111

Heavy-duty chemical-protective suit, permeation-tested to withstand over 200 chemical hazards, among which chemical warfare agents. This full-body protective suit also boasts double cuffs and dual-zip systems, further enhancing its defensive barrier.

Note: Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment. Or use our self-service AnsellGUARDIAN® Partner tool to search our extensive chemical permeation and degradation data to identify the appropriate hand and body protection for the chemicals you use.

AnsellGUARDIAN®

Performed by our safety experts, AnsellGUARDIAN® is a service that helps our customers to improve their safety, productivity, combining 45 years of safety assessment experience with a data-driven methodology, delivering unique personalised assessments.

WHAT WE DO

Safety & Compliance

We provide a personalised risk management solution that leads to improved worker safety, injury reduction and increased regulatory compliance.

Cost Performance

We advise on business performance improvements that result in lower overall costs for your company.

Productivity

We deliver best practice recommendations to optimise your PPE dispensing, improve your company's output and eliminate waste, leading to an increase in productivity.

HOW WE DO IT

Data Collection > Assessment > Validation Testing > Implementation > Training > Expansion

Result Oriented

Our simple and clear processes focus on the most relevant areas to deliver our best practices recommendations for one single application or even an entire site.

Tailor-made

Every customer is different, and so are their safety needs. Our 600+ safety experts assess each situation individually, using the data provided and a proven process. This results in a unique, tailor-made assessment to meet your objectives.

Transformational

Our safety experts support the full implementation of our assessment with samples and education of your workers, to ensure the success of PPE change management.

Sustainable Partnership

We start our partnership by analysing, benchmarking, implementing and improving your PPE related operations and performance. One assessment at a time, we assess your current and future safety needs.

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